



**Nonmoral beliefs are better predictors of moral judgments
than moral values**

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Abstract

Moral psychologists typically explain moral cognition by invoking abstract moral values like fairness and loyalty. We argue that this approach is inadequate, particularly in accounting for moral disagreements between people who share similar values. Our new paradigm addresses this problem by instead modeling moral cognition as a function of relevant nonmoral beliefs. One hypothesis stemming from this “Is→Ought” model is that relevant beliefs will predict moral judgments on controversial issues better than abstract moral values like the “moral foundations”. We found strong support for this hypothesis: Across two studies of U.S. adults (*N* = 361), nonmoral beliefs outperformed values in predicting moral judgments on each of eight controversial topics. When controlling for political affiliation, relevant beliefs were the only robust predictors. These findings support the view that people’s moral divisions are determined not, as presently assumed, by their values, but instead by their different views on relevant details.

Keywords: Ontological Frames; Moral Cognition; Moral Disagreement; Moral Foundations

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Study 2: https://osf.io/msg96/?view_only=dbf7448be3f34dfba118c050eae0ff01).

Materials: The data and analysis code are available at

https://osf.io/tn79q/?view_only=d9dd7dd5117048b392af5ce16aaa11b7. Any materials
or analyses not in the Main Text are included in the Supplementary Materials associated
with this article.

Nonmoral beliefs are better predictors of moral judgments than moral values

“Information, it is argued, cannot supply its own energy.”

-Shweder, 1992

The major theories of moral psychology tend to presume that making moral judgments is a matter of detecting adherence to or violations of abstract values, like fairness and respect, and that disagreements about controversial issues derive from disagreements about values. The best known of these approaches is Moral Foundations Theory (MFT), which proposes that a handful of fundamental values, such as care and loyalty, comprise the “irreducible basic elements” of morality (Graham et al., 2013), and which compares these values to “taste buds” (Haidt & Joseph, 2004). Just as human taste buds support a diversity of world cuisines, MFT suggests that a set of universal moral tastebuds are the basis for the moral diversity observed in cultures around the world.

Supporting this view, numerous studies demonstrate that people’s patterns of endorsing different moral foundations predict both their moral ideologies and judgments (e.g., Graham et al., 2009, 2011; Haidt & Graham, 2007; Koleva et al., 2012; Piazza et al., 2019; Rottman et al., 2014). For instance, Graham et al. (2009) showed that liberals and conservatives in the U.S. endorse moral foundations in distinct patterns that predict differences in moral judgments observed across these political groups (also see Iyer et al., 2012). Moreover, individual differences on the Moral Foundations Questionnaire (MFQ; Graham et al., 2011; also see Atari et al., in press) predict moral attitudes on

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3 culture-war issues, even after controlling for ideology, age, gender, religion, and politics
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5 (Koleva et al., 2012; but see Teas et al., 2024), and studies of large bodies of text reveal
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7 associations between the use of language related to particular moral foundations and
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9 the prevalence of hateful slurs (Kennedy et al., 2023). Finally, different moral
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11 foundations are associated with distinct neural patterns (Hopp et al., 2023) and
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13 cognitive signatures (e.g., Rottman & Young, 2019; Young & Saxe, 2011).
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17 Competing theories tend to share with MFT the assumption that moral cognition
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19 is determined by moral values, whether morality is reduced to perceived harm (e.g.,
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21 Schein & Gray, 2018) or modeled via a different plurality of values than those proposed
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23 under MFT (e.g., Curry, 2016). Perhaps because this assumption is widely shared,
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25 moral psychologists have not typically focused on interrogating this core premise that
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27 values are the irreducible basic elements of morality (VIBE). The VIBE obscures the fact
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29 that there is no direct evidence that any moral values comprise "the first draft of the
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31 moral mind" (as per Haidt, 2012), such that they underlie morality at a basic level, nor
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33 that moral values predict moral judgments better than other non-demographic or
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35 non-ideological factors.
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39 An alternate approach rejects the premise that morality is determined by abstract
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41 values, including those described as "moral foundations," and instead grounds moral
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43 cognition in nonmoral beliefs about the world (Beal, 2020; Beal, 2021; Beal & Gogia,
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45 2021). This "Is→Ought Model" shares a prominent view that moral disagreements often
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47 come down to different informational assumptions (Turiel et al., 1987; Turiel et al., 1991;
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49 Wainryb, 1991, 2004). However, whereas Wainryb (2004) disclaims that this view is "not
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51 about how moral concepts are derived from factual understandings of reality," the
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Is→Ought Model builds upon demonstrations that the gap between “is” and “ought” (Hume, 1739-40/2009) is regularly traversed in everyday life (Much & Shweder, 1978; Searle, 1969; Shweder, 1992; Shweder & Much, 1987). Not only do people’s beliefs about reality inform their normative inferences about how to act (e.g., Cushman & Young, 2011), but mere information has motive force—promoting certain behaviors and dissuading us from others (Shweder, 1992). The question is, how? How do minds make the leap from mere beliefs about how things are to strong moral motivations governing how we ought to behave?

A useful first step is to consider a simple example of an inference from “is” to “ought.” Suppose that you are assembling a chair using screws: How might you infer what you ought to do with a screw in this instance? What motivates you to act? The first inference might involved the synthesis of two beliefs:

Belief #1: “Turning the screw clockwise tightens it.”

Belief #2: “My present task requires me to tighten the screw.”

Normative inference: “I ought to turn the screw clockwise.”

Here, two descriptive (i.e., non-normative) premises lead to a normative conclusion about what you ought to do. To verify that the conclusion differs from each premise, we need only consider that it is possible to change the conclusion either by changing Belief #1 (e.g., “Turning the screw clockwise loosens it”) or Belief #2 (e.g., “My present task requires me to loosen the screw”). Thus, we have a clear case of deriving a normative conclusion from non-normative premises, “ought” from “is.” Alongside this normative inference, the motivation to tighten the screw comes from the fact that you are assembling a chair.

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3 Now that we have seen that it is possible to infer “ought” from “is,” we may ask
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5 again—how? A key insight comes from philosophy. Heidegger (1927/2010) pointed out
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7 that our understanding of things is intimately bound up with our nature as caring beings
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9 concerned with our existence, with goals and projects from the beginning. As such,
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11 one’s understanding that “this is a chair” carries within it a history of desires and needs,
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13 like the desire to rest comfortably or the need to sit and work on some project. The
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15 understanding of how one would need to turn the screw to tighten it, together with the
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17 awareness that you want to tighten the screw, gives rise to a normative inference and a
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19 motive to follow through and turn the screw clockwise.
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24 Generally, if you decide you no longer want to assemble a chair, that’s your
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26 choice. But we don’t always feel free to do what we want. Suppose you are a surgeon,
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28 and the screw is going into a patient’s hip. In these circumstances, you would likely not
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30 feel free to leave the screw out. Instead, layered atop the nonmoral norm of how to turn
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32 the screw would be another norm specifying that you ought to want to turn the screw
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34 and properly complete this task. This meta-norm is a moral norm. As with nonmoral
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36 norms, it emerges from a synthesis of nonmoral beliefs. The Is→Ought Model proposes
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38 an explanation for how.
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42 There are three pathways through which nonmoral beliefs create and influence
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44 moral judgments—“building,” “bending,” and “attracting” pathways. Let us consider them
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46 in turn. Most fundamental are the nonmoral beliefs that build moral relationships. These
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48 include the belief that an object or “end” is inherently valuable, the belief that a subject
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50 has agency relative to the object, and the perception of existential closeness between
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52 subject and object (Beal, 2021; Beal & Gogia, 2021). Moral relationships emerge from
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the synthesis of these nonmoral “builders,” providing the motive force behind all moral norms: i.e., The reason people feel impelled by moral norms is because, implicitly, they understand themselves as being in moral relationships.

Once moral relationships take shape in a mind, other nonmoral beliefs become morally relevant. For instance, if one feels a moral responsibility toward human life, then the question of when human life begins might influence one’s moral stance on abortion. If abortion is understood as a violation of one’s moral relationship with human life, this implies abortion is immoral; whereas, if abortion is understood as a woman’s decision in relation to her own body and future, this implies abortion is permissible.

The present studies are motivated by a hypothesis about the role of these secondary “bender” beliefs in determining moral differences. A key observation behind this hypothesis is that, even as people agree that it is good to be caring, respectful, and so on, we nonetheless have strong moral disagreements. For example, pro-life and pro-choice advocates generally share a core value of caring for human lives, yet generally disagree in their moral views on abortion. A description of moral cognition in terms of abstract values (e.g., “care/non-harm”) thus seems incapable of explaining these disagreements. From this observation, Beal (2020) hypothesized that relevant nonmoral beliefs (“benders”) should outperform abstract values like the moral foundations in predicting moral judgments on divisive social issues. We therefore developed “bender” beliefs (e.g., “life begins at conception”) targeting controversial issues (e.g., abortion), to test the intuition that endorsements of these benders would predict moral judgments on the targeted issues.

Benders are targeted toward moral judgments in that they are expected to contribute to a specific moral inference. However, what if, in targeting specific moral judgments, we accidentally created predictors that merely restate the targeted moral judgments in different terms? To rule out this possibility, we conducted an additional Validation Study (described fully in the Supplementary Materials). In this study, participants were asked to imagine that a person with a particular bender belief (e.g., the belief that life begins at conception) revised another relevant belief (e.g., coming to believe that the source of moral worth is not life but consciousness) while maintaining the original bender belief. Participants predicted that the person would shift their moral stance (e.g., going from pro-life to pro-choice) in response to this changing context. This finding demonstrates that bender beliefs are not synonymous with the targeted moral judgments.

Finally, we also investigated a third pathway through which nonmoral beliefs influence moral judgment—the “attracting” pathway. “Attractors” are beliefs that predict moral judgments via their association with larger belief systems, such as ideology and zeitgeist. We expected “attractors” to predict moral judgments. However, to the extent that this prediction is based on association and not inference, it should be less robust against ideological controls.

Study 1

Method

Participants

Adult residents of the United States ($N = 200$; female = 107; male = 83; nonbinary/transgender/third gender = 3; White = 142) were recruited from Prolific in May 2023. This sample size was generated by a power analysis for a linear multiple regression, using G*Power 3.1 and specifying a small-to-medium effect size (f -squared = .08) with 80% power and an alpha of .00625 (given a correction for eight separate tests), which indicated a minimum sample size of 164. Given that we expected to exclude up to 15% of the sample, we rounded up to 200 participants. In the end, we excluded 7 participants for failing preregistered attention checks ($n = 4$) or having missing data ($n = 3$), retaining a final sample of 193.

Materials and Procedure

Because the MFQ intermixes archetypal values with contextual framing, we did not initially compare our “bender” beliefs to MFQ scores. Instead, Study 1 pits the benders against people’s endorsements of moral values in abstraction. Participants made moral judgments about eight divisive moral issues (Table 1), after which they indicated their level of agreement with statements involving six abstract moral values, their level of agreement with two statements involving targeted bender beliefs (one hypothesized to correlate positively and another to correlate negatively with moral judgments on each moral issue), and their placement of relevant entities into “moral circles” (Crimston et al., 2016, 2018). The “moral circles” paradigm is another alternative to the VIBE, which dovetails to some extent with the Is→Ought approach. However, “moral circles” are moral beliefs, so the approach does not break these beliefs down to nonmoral elements. Additionally, the moral circles task does not distinguish value from closeness but provides a composite measure that may capture elements of both. All

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3 judgments were made on 7-point Likert scales ranging from “strongly disagree” to
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5 “strongly agree,” with the exception of the moral circles task, where entities were
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7 classified within one of four levels of moral worth (Crimston et al., 2016). The moral
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9 foundation, bender belief, and moral circles measures were randomly ordered. All items
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11 within each measure were also randomized.
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14 15 **Table 1**

16 17 *Moral Judgments on Eight Divisive Issues*

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20 Abortion is wrong.

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22 We should defund the police.

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24 We ought to preserve the environment at all costs.

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26 Vaccine Mandates are immoral.

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28 Americans have a fundamental right to bear arms.

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30 Trump’s “Muslim Ban” was immoral.

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32 We have a moral obligation to “cancel” people who deserve it.

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34 Bathroom bans against transgender people are morally wrong.
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40 41 **Results**

42 We conducted eight linear regressions to predict each of the eight moral
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44 judgments, using the six single-item abstract value ratings, the two targeted bender
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46 belief ratings, and the two targeted moral circles ratings as predictors. Because of the
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48 large number of predictors, we conducted backward stepwise regression (systematically
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50 eliminating the predictors with the highest p-values until all remaining predictors were
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52 significant).
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In the full model comparing moral values, bender beliefs, and moral circles, twelve of the sixteen bender judgments were predictive of moral judgments, compared to four out of forty-eight abstract value judgments and four out of sixteen moral circles judgments (Table 2). At least one bender was a significant predictor for each of the eight moral judgments, and beliefs outperformed both moral values and moral circles on all eight moral judgments—i.e., the best predictor for each of the eight moral judgments, as defined by the highest *t*-value and lowest *p*-value, was a bender belief (see Supplementary Materials, Table S2).

Table 2*Study 1: Moral Values, Bender Beliefs, and Moral Circles*

Moral Values	Moral Judgments							
	1	2	3	4	5	6	7	8
	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Preventing harm is of utmost moral importance.	—	—	—	—	—	—	—	—
Being fair is of utmost moral importance.	—	—	—	—	—	—	—	—
Being loyal is of utmost moral importance.	—	—	—	—	—	—	—	—
Obedying legitimate authorities is of utmost moral importance.	—	-0.18 (0.06)	—	—	—	—	—	—
Being pure is of utmost moral importance.	—	—	—	—	—	-0.19 (0.07)	—	—
Protecting personal liberties is of utmost moral importance.	—	—	—	0.28 (0.07)	0.22 (0.07)	—	—	—
Bender Beliefs	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Life begins at conception.	0.57 (0.06)							
A fetus is part of a woman's body.	—							
Black Americans are often targeted by police.		0.21 (0.07)						
Police forces keep neighborhoods safe.		-0.60 (0.08)						
Climate change is destroying many ecosystems.			0.40 (0.06)					

Fracking is necessary for maintaining economic growth.	-0.26 (0.06)								
Public health experts know what is best for keeping people healthy.	-0.32 (0.09)								
Vaccines are unsafe and ineffective.	0.60 (0.09)								
Regulating guns is a slippery slope to taking away other liberties.	0.47 (0.05)								
Gun laws will effectively prevent murders and suicides.	—								
Immigrants help the economy.	0.58 (0.07)								
Immigrants make the country unsafe.	—								
Cancel culture will cause many innocent people to suffer.	-0.21 (0.08)								
Fears about cancel culture are overblown.	0.25 (0.08)								
Changing one's gender is unnatural.	-0.74 (0.04)								
Gender is not biological.	—								
Moral Circles	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
A fetus (12 weeks after conception)	-0.45 (0.12)								
A pregnant woman considering an abortion	0.42 (0.11)								
A Black man	—								
A policeman	0.39 (0.12)								
The natural world	—								

Oil companies	—			
An anti-vaxxer		—		
A vaccine advocate		—		
			-0.52	
A gun owner			(0.10)	
A person who protests against gun rights			—	
A Muslim immigrant				—
A citizen of the United States				—
A person with objectionable beliefs				—
A person with politically correct beliefs				—
A transgender person				—
A cisgender person				—

Note. Because some predictors were systematically removed through backward stepwise regressions, we are only able to present statistically significant beta values, with Bonferroni corrected alpha = .00625. Predictors removed in this way are indicated by dashes. Columns correspond to individual models predicting moral judgments on the following eight issues (see Table 1 for full text): 1 = Abortion Rights; 2 = Defunding the Police; 3 = Environmental Protection; 4 = Vaccine Mandates; 5 = Right to Bear Arms; 6 = Trump's Muslim Ban; 7 = Cancel Culture; 8 = Transgender Bathroom Rights.

Study 2

Method

Participants

Adult residents of the United States ($N = 200$; female = 90; male = 72; nonbinary/transgender/third gender = 5; prefer not to answer = 1; White = 119) were recruited from Prolific in July of 2023. This sample size was generated by a power analysis for a linear multiple regression, using G*Power 3.1 and specifying a

small-to-medium effect size (f -squared = .08) with 80% power and an alpha of .00625 (given a correction for eight separate tests), which indicated a minimum sample size of 164. Given that we expected to exclude up to 15% of the sample, we rounded up to 200 participants. In the end, we excluded 32 participants for failing preregistered attention checks, retaining a final sample of 168.

Materials and Procedure

Participants made moral judgments about the eight divisive issues that were examined in Study 1 (see Table 1), after which they indicated their level of agreement with two distinct measures of beliefs: a) targeted “benders” adapted from Study 1, and b) a set of 10 non-targeted “attractors” (see Table 4). We also collected two distinct measures of abstract moral values: a) our own moral values questions, adapted from Study 1, and b) the original Moral Foundations Questionnaire (MFQ) (see Supplementary Materials). For Study 2, we omitted questions about moral circles, since these did not outperform the benders. Finally, we reworded each of the four lowest-performing belief and values items from Study 1 (see Table 2). All moral value and bender belief measures were randomly ordered. All items within each measure were also randomized.

Results

We first conducted eight linear regressions to predict each of the eight moral judgments, using the six abstract value ratings and the two targeted bender belief ratings as predictors. Because of the large number of predictors, we conducted backward stepwise regression (systematically eliminating the predictors with the highest

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3 *p*-values until all remaining predictors were significant). We then reran the analyses with
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5 the MFQ scores (Graham et al., 2011) in place of the single-item abstract value ratings.
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8 In the model comparing single-item moral values to benders, fourteen of the
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10 sixteen bender belief judgments were predictive of moral judgments, compared to six
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12 out of forty-eight moral value judgments (Table 3). At least one nonmoral belief was a
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14 significant predictor for each of the eight moral judgments, and benders outperformed
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16 values on all eight moral judgments. Running the model with MFQ scores in place of our
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18 single-item values measures did not substantially change the results: Seven of the forty
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20 MFQ scores were predictive of moral judgments, and benders outperformed MFQ
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22 scores in predicting every moral judgment (see Supplementary Materials, Table S3).
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Table 3

Study 2: Moral Values vs. Bender Beliefs

Moral Values	Moral Judgments							
	1	2	3	4	5	6	7	8
	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
*Being compassionate is of utmost moral importance.	—	—	—	—	—	0.25 (0.09)	—	—
*Achieving justice is of utmost moral importance.	—	—	—	—	—	—	—	—
*Being patriotic is of utmost moral importance.	—	—	—	0.28 (0.06)	—	-0.17 (0.06)	—	—
Obeying legitimate authorities is of utmost moral importance.	—	-0.18 (0.06)	—	—	—	—	—	—
*Maintaining purity and sanctity is of utmost moral importance.	0.20 (0.06)	—	—	—	—	—	—	—
Protecting personal liberties is of utmost moral importance.	—	—	—	—	0.26 (0.08)	—	—	—
Bender Beliefs	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Life begins at conception.	0.47 (0.06)							
*An unborn fetus cannot experience feelings of pain or loss.	-0.27 (0.05)							
Black Americans are often targeted by police.		0.18 (0.06)						
Police forces keep neighborhoods safe.		-0.76 (0.06)						

Climate change is destroying many ecosystems.	0.63 (0.05)	
Fracking is necessary for maintaining economic growth.	—	
Public health experts know what is best for keeping people healthy.	-0.40 (0.09)	
Vaccines are unsafe and ineffective.	0.49 (0.10)	
Regulating guns is a slippery slope to taking away other liberties.	0.40 (0.07)	
*Reducing a country's gun ownership increases national safety.	-0.27 (0.07)	
Immigrants help the economy.	0.40 (0.08)	
*Immigrants are more likely to break laws than citizens.	-0.37 (0.08)	
Cancel culture will cause many innocent people to suffer.	-0.46 (0.07)	
Fears about cancel culture are overblown.	—	
Changing one's gender is unnatural.		-0.41 (0.09)
*Some people are born into bodies that do not match their gender identities.		0.41 (0.09)

Note. Statistically significant beta values, with Bonferroni corrected alpha = .00625. Columns correspond to individual models predicting moral judgments on the following eight issues (see Table 1 for full text): 1 = Abortion Rights; 2 = Defunding the Police; 3 = Environmental Protection; 4 = Vaccine Mandates; 5 = Right to Bear Arms; 6 = Trump's Muslim Ban; 7 = Cancel Culture; 8 = Transgender Bathroom Rights.

^a Asterisks indicate that the predictor has been reworded from Study 1.

We next ran eight regressions to predict each of the eight moral judgments from the ten non-targeted attractor ratings, and another set of eight regression models combining the significant predictors from the first and second rounds of analysis. Although non-targeted attractor beliefs were not as predictive as targeted benders, they still outperformed moral values. In the full model comparing abstract values, benders, and attractors, eight out of eighty attractor judgments (10%) predicted moral judgments, compared to just one out of forty-eight moral foundation judgments (2%) (Table 4). And in the model with only attractors, each moral judgment was predicted by at least two attractor beliefs (see Supplementary Materials, Table S4).

Table 4*Study 2: Moral Values, Benders, and Attractors*

	Moral Judgments							
	1	2	3	4	5	6	7	8
	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Moral Values								
*Being compassionate is of utmost moral importance.	—	—	—	—	—	—	—	—
*Achieving justice is of utmost moral importance.	—	—	—	—	—	—	—	—
*Being patriotic is of utmost moral importance.	—	—	—	—	—	—	—	—
Obeying legitimate authorities is of utmost moral importance.	—	—	—	—	—	—	—	—
*Maintaining purity and sanctity is of utmost moral importance.	—	—	—	—	—	—	—	—
Protecting personal liberties is of utmost moral importance.	—	—	—	—	0.25 (0.08)	—	—	—
Bender Beliefs	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
	0.38 (0.06)							
Life begins at conception.								
*An unborn fetus cannot experience feelings of pain or loss.	-0.20 (0.05)							
Black Americans are often targeted by police.		—						
Police forces keep neighborhoods safe.		-0.67 (0.07)						
Climate change is destroying many ecosystems.			0.47 (0.07)					
Fracking is necessary for maintaining economic growth.			—					
Public health experts know what is best for keeping people healthy.				—				
Vaccines are unsafe and					0.42			

	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
ineffective.								
Regulating guns is a slippery slope to taking away other liberties.								
*Reducing a country's gun ownership increases national safety.								
Immigrants help the economy.								
*Immigrants are more likely to break laws than citizens.								
Cancel culture will cause many innocent people to suffer.								
Fears about cancel culture are overblown.								
Changing one's gender is unnatural.								
*Some people are born into bodies that do not match their gender identities.								
Attractor Beliefs	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
God is not pleased with the direction the world is headed.	0.17 (0.06)	—	—	—	—	—	—	—
Young people today are entitled and overly fragile.	—	—	—	—	—	—	—	—
Messing with biology disrupts the natural order of things.	—	—	—	—	—	—	—	—
You can't trust the mainstream media.	—	—	—	—	—	—	—	—
The deep state is out to get Trump.	—	—	—	—	—	-0.28 (0.05)	—	-0.21 (0.06)
Science is the most trustworthy source of truth.	—	—	—	—	—	—	—	—
The wealthiest 1% of Americans are not adequately taxed.	—	—	—	—	—	—	—	—
Our society gives white men unearned privileges.	-0.13 (0.05)	—	—	-0.23 (0.06)	—	0.24 (0.05)	—	—

Older generations have screwed up the planet.	—	0.18 (0.06)	—	—	—	—	0.24 (0.07)
Black lives matter.							

Note. Statistically significant beta values, with Bonferroni corrected alpha = .00625. Columns correspond to individual models predicting moral judgments on the following eight issues (see Table 1 for full text): 1 = Abortion Rights; 2 = Defunding the Police; 3 = Environmental Protection; 4 = Vaccine Mandates; 5 = Right to Bear Arms; 6 = Trump's Muslim Ban; 7 = Cancel Culture; 8 = Transgender Bathroom Rights.

^a Asterisks indicate that the predictor has been reworded from Study 1.

Although no single attractor predicted a majority of moral judgments, in the model with only attractors all eight moral judgments were predicted by at least one of just three beliefs: 1) "Our society gives white men unearned privileges"; 2) "The deep state is out to get Trump"; 3) "Older generations have screwed up the planet" (see Supplementary Materials, Table S4). Moreover, for all but one moral judgment, the most predictive attractor was one of these three (Table 5). Thus, this analysis suggests that a questionnaire with just three attractor items might offer stronger predictions about moral judgments among US participants than the 30-item MFQ. This latter possibility could easily be tested against a new set of moral judgments.

Table 5

Highest Performing Attractor Beliefs

Moral Judgments	Top Attractors
Abortion is morally wrong	"God is not pleased with the direction the world is headed"
We should defund the police	"Older generations have screwed up the planet"
We ought to preserve the environment at all costs	"Older generations have screwed up the planet"
Vaccine mandates are immoral	"The deep state is out to get Trump"
Americans have a fundamental right to bear arms	"Our society gives white men unearned privileges"
Trump's "Muslim Ban" was immoral	"The deep state is out to get Trump"
We have a moral obligation to "cancel" people who deserve it	"Older generations have screwed up the planet"
Bathroom bans against transgender people are morally wrong	"Our society gives white men unearned privileges"

Note. All attractors statistically significant, in the models with only attractors, at Bonferroni corrected alpha = .00625.

Finally, we also ran an exploratory (not pre-registered) set of models controlling for social and economic conservatism. In these models, with a few exceptions, targeted bender beliefs were the only significant predictors (see Supplementary Materials, Table S5). For instance, after controlling for politics in a model pitting benders against MFQ measures, the MFQ yielded just a single statistically significant prediction, compared to thirteen predictive bender beliefs (Table 6). And in the full model comparing benders, attractors, and MFQ measures while controlling for conservatism, just three attractors were predictive. These data suggest that, of all the measured predictors, only targeted benders offer predictive value that robustly transcends political identity. This finding is

consistent with the intuition that our attractors are predicting via association, whereas our benders are predicting via inference.

Table 6

Study 2: MFQ vs. Bender Beliefs After Controlling for Conservatism

	Moral Judgments							
	1	2	3	4	5	6	7	8
MFQ	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
			0.37					
Care/Non-harm	—	—	(0.10)	—	—	—	—	—
Fairness/Justice	—	—	—	—	—	—	—	—
Loyalty	—	—	—	—	—	—	—	—
Respect for Authority	—	—	—	—	—	—	—	—
Purity/Sanctity	—	—	—	—	—	—	—	—
Bender Beliefs	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)	Beta (SE)
Life begins at conception.	0.36 (0.07)							
*An unborn fetus cannot experience feelings of pain or loss.	-0.20 (0.05)							
Black Americans are often targeted by police.		—						
Police forces keep neighborhoods safe.		-0.74 (0.06)						
Climate change is destroying many ecosystems.			0.53 (0.06)					
Fracking is necessary for maintaining economic growth.			—					
Public health experts				-0.28				

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4	know what is best for	(0.09)	
5	keeping people healthy.		
6	Vaccines are unsafe	0.50	
7	and ineffective.	(0.09)	
8			
9	Regulating guns is a		
10	slippery slope to taking	0.41	
11	away other liberties.	(0.07)	
12			
13	*Reducing a country's		
14	gun ownership		
15	increases national	-0.25	
16	safety.	(0.07)	
17			
18	Immigrants help the	0.28	
19	economy.	(0.08)	
20			
21	*Immigrants are more		
22	likely to break laws	-0.31	
23	than citizens.	(0.08)	
24			
25	Cancel culture will		
26	cause many innocent	-0.36	
27	people to suffer.	(0.08)	
28			
29	Fears about cancel		
30	culture are overblown.	—	
31	Changing one's gender		-0.28
32	is unnatural.		(0.09)
33			
34	*Some people are born		
35	into bodies that do not		
36	match their gender		0.27
37	identities.		(0.10)
38			
39			

40 *Note.* Statistically significant beta values, with Bonferroni corrected alpha = .00625.
41 Columns correspond to individual models predicting moral judgments on the following
42 eight issues (see Table 1 for full text): 1 = Abortion Rights; 2 = Defunding the Police; 3 =
43 Environmental Protection; 4 = Vaccine Mandates; 5 = Right to Bear Arms; 6 = Trump's
44 Muslim Ban; 7 = Cancel Culture; 8 = Transgender Bathroom Rights.

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47 ^a Asterisks indicate that the predictor has been reworded from Study 1.
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Discussion

Across two studies, targeted bender beliefs outperformed abstract values in predicting moral judgments on each of eight divisive issues. After controlling for social and political conservatism in a model comparing benders to the MFQ, benders remained predictive on all issues, whereas the MFQ yielded just one statistically significant prediction out of forty measures. Although specifically relevant beliefs were by far the best predictors of moral judgments, even generic “attractor” beliefs outperformed moral foundations. Together, these data demonstrate that abstract moral values are far weaker predictors of specific moral judgments than relevant nonmoral beliefs, consistent with the Is→Ought Model’s contention that beliefs, not values, do the work of moral cognition.

Two considerations support the view that our “bender” beliefs influence moral judgments via inference. First, our validation study rules out the possibility that the benders and moral judgments are synonymous. Second, our “bender” beliefs were much more robust against a control for political identity than “attractor” beliefs or the abstract values. Thus, beyond supporting the core tenet of the Is→Ought Model—that moral judgments are inferences over nonmoral beliefs—our findings offer a specific account of the role of “bender” beliefs in moral disagreements.

5.1 Limitations and future directions

Just as the correlational data supporting MFT do not prove that moral foundations are causally involved in moral cognition, the present studies do not conclusively establish the causal relation between bender beliefs and moral inference. For instance, political slogans and other cultural memes can operate on multiple levels,

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simultaneously activating a bending function and an attracting function, and individual statements cannot always be cleanly placed into a single category. Therefore, a worthwhile follow-up to our studies would be the development of a context-sensitive methodology for classifying beliefs in relation to moral judgments. Such a methodology would ideally be able to quantify the extent to which a belief is performing a “bending” or “attracting” function relative to a particular moral judgment in a particular context.

Another caveat is that these studies examined variation rather than universality. Future research should utilize new methodological approaches to gain insight into how, beyond serving as the strongest predictors of variability in moral judgments, nonmoral beliefs might also comprise the bedrock of moral cognition.

Minding these caveats, the present studies recommend a shift away from the current VIBE and toward computationally rooted approaches that explain moral cognition as a function of relevant nonmoral beliefs.

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